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STATISTICAL ANALYSIS OF THE ANNUAL AVERAGE F.O.B. PRICES OF PACIFIC COAST CANNED BARTLETT PEARS, 1926-27 to 1936-37

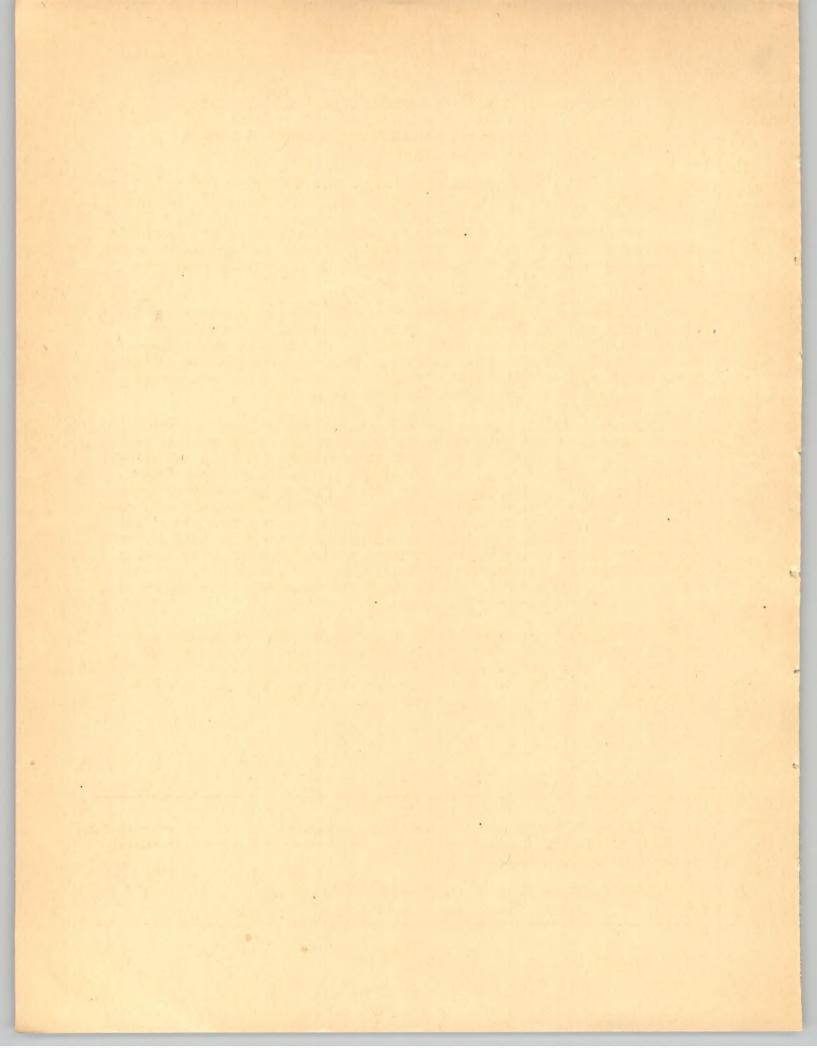
by

H. R. Wellman and M. D. Street

August, 1937

Giannini Foundation of Agricultural Economics
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### STATISTICAL ANALYSIS OF THE ANNUAL AVERAGE F.O.B. PRICES

OF PACIFIC COAST CANNED BARTLETT PEARS, 1926-27 to 1936-37

# H. R. Wellman and M. D. Street 3

The purpose of this report is to present the results of an analysis of the major factors which have influenced the annual average f.o.b. prices received for canned Bartlett pears by canners on the Pacific Coast from 1926-27 through 1936-37.

It should be clearly recognized that the results presented herein explain only what has occurred. They do not forecast what will occur in the future. The analysis is intended merely as a guide to those interested in estimating either the probable price at which a given quantity of canned pears can be sold or the probable quantity of canned pears which can be sold at a given price under specified conditions.

In this analysis the average relationships which prevailed from 1926-27 through 1936-37 between the f.o.b. prices of canned Bartlett pears and three factors were measured. These three factors are (1) total shipments of Pacific Coast canned pears, (2) index of nonagricultural income in the United States, and (3) adjusted index of prices of competing canned fruit. It is not to be supposed that these three factors are the only ones which have affected the annual average f.o.b. prices of canned pears from 1926-27 through 1936-37, or that they are the only ones which will affect the average f.o.b. prices during the coming years. Neither is it certain that the relationships between the f.o.b. prices of canned pears and the factors measured will be the same in the future as they were on the average during the period covered by the analysis.

The f.o.b. prices used in this analysis are weighted average prices for all grades and sizes of cars. During the period June 1936 through May 1937, the average f.o.b. price per case received by California canners for No.  $2\frac{1}{2}$  choice Bartlett pears was 5 per cent above the average f.o.b. price for all grades and sizes of cans.

Associate Professor of Agricultural Economics, Associate Agricultural Economist in the Experiment Station, and Associate Agricultural Economist on the Giannini Foundation.

<sup>2/</sup>Research Assistant on the Giannini Foundation.

# STATISTICAL ANALYSIS OF THE ANNUAL AVERAGE P.O.B. PRICES OF PACIFIC COAST CAMED PARTIETT PEARS, 1986-87 to 1856-87

# H. R. Wollman Land M. D. Street S.

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In this analysis the average relationships which proved from 1926-27 through 1936-87 between the face, prices of carried Sartlett pears and three insters were measured. These three insters are (i) total ships and three insters were measured. These three insters are (i) total ships meats of Preifits Goast carried pears. (2) index of nonegalcultural income in the United States, and (3) adjusted index of prices of competing carried in the United States, and (5) adjusted index of prices of carried carried which have affected the surposed that these face, rates of enanced pears from the average 100,0, rates of enanced pears from the average face, heither is it gerical the average face, prices dering the carried carried that the the relationships between the face, prices of enanced pears and the factors measured will be the same in the fature as they were on the average during the period covered by the analysis.

The factor weed in this analysis are weighted average prious for all grades and siscs of cares. During the period June 1936 through May 1937, the average factor period per case received by California samers for No. 25 choice Eartlett pears was 5 per cent above the average factor prior for all grades and siscs of came.

Personal Assistant on the Giannini Foundations

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TABLE 1

Annual Average F.O.B. Prices of Canned Pears, Pacific Coast and Important Factors Affecting Them, 1926-27 to 1936-37

Year June through May	F.o.b. price	Pacific Coast canned pear shipments	Index nonagricultural income	Adjusted index prices competing canned fruits
	dollars per case	2 1,000 No. 2½ cases	per cent	per cent
1926-27 1927-28 1928-29 1929-30 1930-31 1931-32 1932-33 1933-34 1934-35 1935-36 1936-37	4.31 4.60 4.13 4.82 3.53 2.82 2.48 2.64 3.05 2.92 2.92	3,378 2,883 3,998 3,580 4,216 3,672 3,532 4,533 4,488 4,560 5,485	101 102 106 107 95 78 62 67 72 78 89	100 88 86 100 88 87 97 103 107 94 83

Sources of data:

Col. 1: Compiled from records of canners. Prices are weighted average prices for all grades and sizes of cans, f.o.b. cannery.

Col. 2: From table 3, col. 5.

Col. 3: Simple average of the monthly indexes of nonagricultural income. Recent figures are given in United States Department of Agriculture Bureau of Agricultural Economics. The Agricultural Situation, current issues.

Col. 4: From table 4, col. 9.

Annual Average P.O.B. Prices of Conned Pears, Pacific Const and Important Pactors Affecting Thom, 1928-27 to 1936-57

	idjusted	Tadex	Pagiile Const	ed.o.4	TeaT
	newooding	Longlustancou	Poor	price	Ame through May
1	at Luci bearers	er too ch	shipmonts		
			8	The Island	
	700	ALC: N	000,1	anniton	
	JE00	dato	Wos Sign		
			90898		
	300	101	8,878	16.4	1926-27
į		108	2,895	08.4	1927-28
	88	106	888 8	delS	1929-29
		107		88.6	1325-80
	a88 a	39	0,216	38.58	1950-51
i	- 78	87	8,872	\$8,5	1931-32
		\$8	5,552	84.8	1982-83-
		67	4,888	Safid	1988-84
	207	92	4,488		1984-86
	. 96	78	4,680	88.82	1985+86
	44 88	68	5,485	80.8	1938-37

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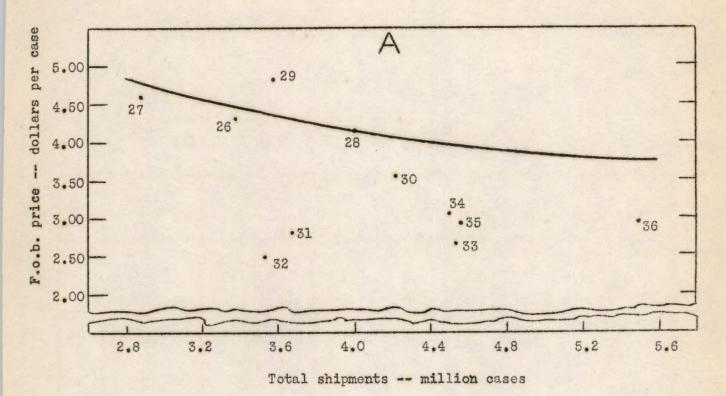
Col. 1: Compiled from records of commors. Fricas are weighted average prices for all grades and stace of dans, fie.b. educery.

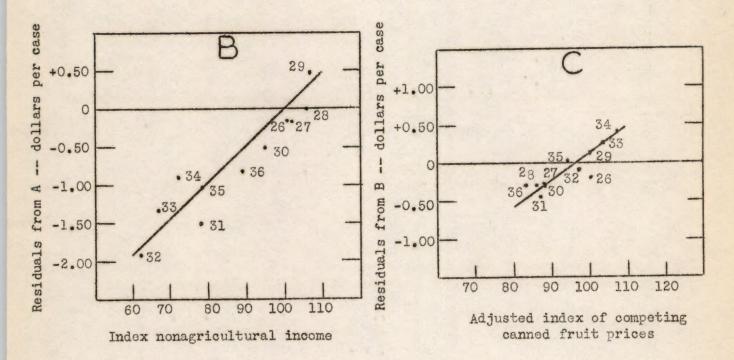
Col. 2: From bable 8, col. 5.

Col. 3: Simple average of the monthly indexes of non-gricultural income. Record figures are given in United States Department of Agrioutture Sureau of Agricultural Recommiss. The Agricultur 1 Titustion, current issues.

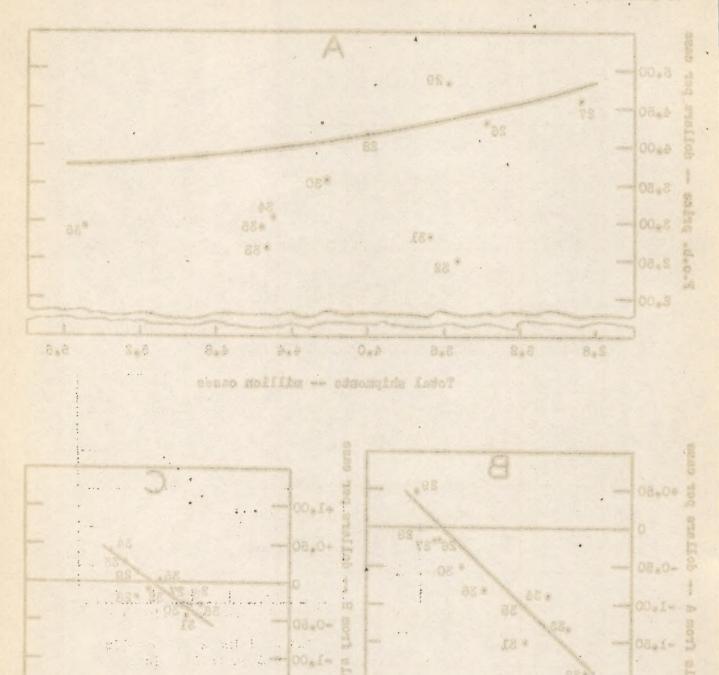
Col. A: From table 4, col. 9.

Fig. 1.-- Canned pears, Pacific Coast: Average f.o.b, prices received by canners related to (A) shipments of canned pears, (B) index of urban consumers income, and (C) adjusted index of prices of competing canned fruits. 1927-28 to 1936-37.





On the average (A) an increase in total shipments of canned pears from 4,000,000 cases to 4,500,000 cases has been accompanied by a decrease of 18 cents a case in the average f.o.b. price, and vice versa; (B) a change of 10 points in the index of nonagricultural income has been accompanied by a change in the same direction of 48 cents a case in the average f.o.b. price; and (C) a change of 10 points in the adjusted index of prices of competing canned fruits has been accompanied by a change in the same direction of 35 cents a case in the average f.o.b. price.



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1,000,000 eases to i,500,000 cases has been accompanied by a decrease of 18 ecuts

2 case in the average isos a price, and vice versa; (B) a change of 10 points in

the index of menagricultural income has been accompanied by a change in the same
direction of 48 combs a case in the average faceba price; and (C) a change of

10 points in the adjusted index of prices of competing samed fruits has been
accompanied by a change in the same direction of 55 cents a case in the average

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TABLE 2

Actual and Estimated F.O.B. Prices of Canned Pears, Pacific Coast 1926-27 to 1936-37

Year June through May	Actual prices	Prices estimated from fig. 1A	Residuals from fig. 1A	Adjustment for nonagri- cultural income from fig. 1B	Residuals from fig. 1B	Adjustment for competing fruit prices from fig. 10	Prices explained by three factors	Col. 1 minus col. 7
	1	2	3	4	5	6	7	8
	dollars	dollars	dollars	dollars	dollars	dollars	dollars	dollars
	per case	per case	per case	per case	per case	per case	per case	per case
1926-27	4.31	4.48	-0.17	+0.04	-0.21	+0.14	4.66	-0.35
1927-28	4.60	4.78	-0.18	+0.10	-0.28	-0.28	4.60	0
1928-29	4.13	4.15	-0.02	+0.28	-0.30	-0.36	4.07	+0.06
1929-30	4.82	4.37	+0.45	+0.34	+0.11	+0.14	4.85	-0.03
1930-31	3.53	4.06	-0.53	-0.24	-0.29	-0.28	3.54	-0.01
1931-32	2.82	4.32	-1.50	-1.05	-0.45	-0.33	2.94	-0.12
1932-33	2.48	4.40	-1.92	-1.81	-0.11	+0.03	2.62	-0.14
1933-34	2.64	3.96	-1.32	-1.57	+0.25	+0.25	2.64	0
1934-35	3.05	3.97	-0.92	-1.34	+0.42	+0.39	3.02	+0.03
1935-36	2.92	3.95	-1.03	-1.05	+0.02	-0.08	2.82	+0.10
1936-37	2.92	3.76	-0.84	-0.53	-0.31	-0.46	2.77	+0.15

## Sources of data:

Col. 1: From table 1, col. 1.

Col. 5: Col. 3 minus col. 4.

Col. 2: Readings from curve in fig. 1A.

Col. 6: Readings from diagonal line in fig. 1C.

Col. 3: Col. 1 minus col. 2.

Col. 7: Col. 2 plus col. 4 and col. 6.

Col. 4: Readings from diagonal line in fig. 1B.

Actual and Estimated F.O.B. Priors of Course Pours, Tabillo Cosst 1926-27 to 1936-37 LORES -

7529-91 7529-92 7529-93 7529-93 7529-93 7539-93	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	2 10 2 34 2 36 2 30 3 30 3 30 3 30 3 30 3 30 3 30 3 30	-0.84 -1.02 -0.88 -1.28 -1.85 -1.85 -1.90 -0.82 +0.42 -0.08 -0.79 -0.78	*1*94 *1*94 *1*92 *0*86 *0*86 *0*88 *0*88 *0*86 *0*04		dollars	\$ 3.1 \$ 9.8 \$ 9.0 \$	+0 19 10 10 10 10 10 10 10 10 10 10 10 10 10	
nes spicate sen	Diroge	Tron	CTOM.	Control of the 13	HE WEST IN THE	A Company of the Comp		A ARTHUR STATE	
Year	Actual	Prices	Residue19	Adjustment for noneset-	weergaarth .	The state of the s	Frices	1	

\* \*\*\*\*

Col. 2: Readings from curve in rig. LA. Col. 6: Readings from miagonal line in rig. 1C. Col. 1: From table 1, col. 1. Col. 5: Gol. 5 minus col. 4. Sources of date:

Col. 3: Col. 1 minus cel. 2. Col. 2 plus col. 4 and col. 6.

Col. 4: Readings from diagonal line in fig. 18.

Pack, Carryover, Shipments, and Exports of Canned Pears, Pacific Coast 1926-27 to 1936-37

Year June through May	Pack	Carryover from preceding year	Available for shipment	Carryover into following year	Shipments	Exports
	1	2	3	4	5	6
	1,000	1,000	1,000	1,000	1,000	1,000
	cases*	cases*	cases*	cases*	cases*	cases*
1926-27 1927-28 1928-29 1929-30 1930-31 1931-32 1932-33 1933-34 1934-35 1935-36 1936-37	3,266 2,648 4,124 4,221 4,175 3,652 3,088 4,377 5,505 4,230 5,355	514 402 167 293 934 893 873 429 273 1,290 960	3,780 3,050 4,291 4,514 5,109 4,545 3,961 4,806 5,778 5,520 6,315	402 167 293 934 893 873 429 273 1,290 960 830	3,378 2,883 3,998 3,580 4,216 3,672 3,532 4,533 4,488 4,560 5,485	1,409 1,236 1,821 1,163 1,595 1,618 1,381 1,766 1,503 1,894 1,465

\* No. 22-can basis.

Sources of data:

Col. 1: Compiled by the Canners League of California and the Northwest Canners Association.

Cols. 2 and 4: Figures for California compiled by the Canners League of California. Figures for Pacific Northwest estimated from reports of canners, except for 1932 through 1934 which were compiled by the Northwest Canners Association.

Col. 3: Col. 1 plus col. 2.

Col. 5: Col. 3 minus col. 4.

Col. 6: United States Department of Commerce. Monthly summary of foreign commerce of the United States. Exports in pounds converted to approximate cases of 24 No.  $2\frac{1}{2}$  cans at 45 pounds to the case.

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TABLE 4

Construction of Index of Prices of Canned Fruits Competing with Canned Pears, 1926-27 to 1936-37

Year		Prices		Relativ	es of price	98	Unadjusted index of	Index of nonagri-	Adjusted index of
June through May	Canned	Canned	Canned	Canned	Canned	Canned	competing	cultural	competing
o date o liza angle	clingstone	apricots	pineapples	clingstone	apricots	pineapples	canned fruit	income	canned fruit
o Andrea	peaches			peaches			prices		prices
	1	2	3	4	5	6	7	8	9
	dollars	dollars	dollars per	1924-29	1924-29	1924-29	1924-29	1924-29	1924-29
	per case	per case	dozen cans	= 100	= 100	= 100	= 100	= 100	= 100
								202	100
1926-27	3.66	3.85	2.35	99	100	103	101	101	88
1927-28	3.17	3.97	2.10	86	103	92	90	102	86
1928-29	3.22	3.67	2.20	87	95	96	91	106	
1929-30	4.08	3.97	2.35	111	103	103	107	107	100
1930-31	2.88	3.32	2.10	78	86	92	84	95	88 87
1931-32	2.55	2.64	1.50*	69	69	66	68	78	
1932-33	1.97	2.23	1.60	53	58	70	60	62	97
1933-34	2.31	2.37	1.80	63	62	79	69	67	103
1934-35	2.69	3.47	1.80	73	90	79	77	72	107
1935-36	2.51	2.93	1.80	68	76	79	73	78	94
1936-37	2.66	2.75	1.80	72	71	79	74	89	83

<sup>\*</sup> Opening price, \$1.75; account taken of break in prices during season.

#### Sources of data:

Cols. 1 and 2: Compiled from records of canners. Prices are weighted average prices for all grades and sizes of cans, f.o.b. cannery, California.

Col. 3: Opening prices for No. 22 Sliced Fancy Pineapple, Hawaii, as given in Western Canner and Packer, 1937 Yearbook, p. 85.

Cols. 4, 5, and 6: Prices given in cols. 1, 2, and 3 in per cent of their 1924-29 averages -- canned clingstone peaches, \$3.687; canned apricots, \$3.848; and canned pineapples, \$2.292.

Col. 7: Weighted combination of relatives given in cols. 4, 5, and 6, using following weights: canned clingstone peaches, 8; canned apricots, 2; and canned pineapples, 6.

(Table continued on next page)

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Construction of Index of Prices of Canned Froits Compating with Canned Pears, 1926-27 to 1936-57

1898-34 1836-39 1836-39 1838-39 1831-38 1830-37 1858-38 1858-38 1858-58	4011079 3.68 3.22 3.22 3.22 2.88 4.08 2.86 2.51 2.69 2.69 2.60 2.60	Account to the last to the las	dollars per dollars per dollars per 2,10 2,35 8,20 1,80 1,80 1,80 1,80	99 86 99 76 111 69 73 63 68	AT AR 80 PS	48 48 48 48 48 48 50 88 68 70 88 88 70 88 70 88	= 100 101 90 91 107 68 68 69 69 73	98 48 48 98 69 704 706 708 101	200 86 88 200 87 87 103 97 83
	10,1020	Anll nive	dellars ser	1924-29	1804-88	T854-50	. Tasy-sa	1858-58	7854-58
Javo furenty mak	canned calngatone	Genned apricots	Cannad pinaapplaa	Cannad dlingstone geothes	Cannod apricots	Sannad pinespplas	computing conned fruit primes	dulturel indome	competing canned fruit prices
		Prices		Relativ	es of prior	18	Unadjusted index of	Index of nonspri-	Adjustedindex of

<sup>\*</sup> Opening price, 51.75; account taken of break in prices during scanon.

## gontles of data:

Cols. A and Sr Compiled from resords of semmars. Friess are weighted everage primes for all grades and olses of cams, f.o.b. commery, California,

Gol. 3: Opening prices for No. 25 Sliced Fency Pins ppic, Hassil, as given in Western Conner and Proker, 1937 No. rbook, p. 85.

Cola. 4, 5, and 8: Prices given in cols. 1, 2, and 3 in per cent of their 1924-29 ever-ges -- canned climistone peaches, \$3.687; canned apridate, \$3.668; and conned pineapples, \$2.292.

Col. 7: Weighted combination of reletives given in cols. 4. 5, and 6, using following weights: canned clingstone perches, 6: camed apricate, 2: and conned pineupples. 5. (Table continued on next page)

Table 4 continued.

Col. 8: From table 1, col. 3.

Col. 9: Col. 7 divided by col. 8.

Table 4 continued.

Gols St From table 1, cols 3,

Col. 9: Col. 7 divided by col. 8.